Amendments to the Claims:

1. (Original) A SQUID (Superconducting QUantum Interference Device) sensor using an auxiliary sensor, comprising:

a SQUID sensing unit having a SQUID and a first feedback coil for creating a magnetic field at a periphery of the SQUID;

an auxiliary sensor having a lower magnetic sensitivity and a higher operation range than the SQUID sensing unit; and

a sensor reading unit for operating the SQUID sensing unit and the auxiliary sensor to read out a signal of the SQUID and at the same time, supplying the SQUID sensing unit with an offset magnetic field through the first feedback coil.

2. (Original) The SQUID sensor of claim 1, wherein the sensor reading unit comprises:

a SQUID driving unit for driving the SQUID sensing unit to read out an output signal of the SQUID;

an auxiliary sensor driving unit for driving the auxiliary sensor to read out the output signal of the SQUID; and

a first combining unit for combining magnetic fields generated from the SQUID driving unit and the auxiliary sensor driving unit to supply the SQUID sensing unit with combined magnetic field as the offset magnetic field through the first feedback coil.

3. (Original) The SQUID sensor of claim 2, wherein the SQUID driving unit and the auxiliary sensor driving unit receive reset values respectively to protect a SQUID value from a noise generated from the auxiliary sensor.

4. (Original) The SQUID sensor of claim 3, wherein the reset values are applied with a time lag such that after the offset magnetic field is applied, the SQUID driving unit and the auxiliary sensor driving unit are reset.

5. (Currently Amended) The SQUID sensor of claim 1, wherein the sensor reading unit combines the output signal of the SQUID with a ~~magnetic field~~ signal generated from a second feedback coil.

6. (Original) The SQUID sensor of claim 1, wherein the sensor reading unit combines a maximum value of the magnetic field sensed by the auxiliary sensor with a signal value of the SQUID generated by an operation of the SQUID sensing unit, and applies the combined value to the SQUID sensing unit through the first feedback coil.

7. (Original) The SQUID sensor of claim 1, further comprising a second combiner for combining an output of the auxiliary sensor with an output of the SQUID sensing unit to output a noise-eliminated signal.

8. (Original) The SQUID sensor of claim 7, wherein the second combiner allows a magnetic field value detected by the auxiliary sensor to be included in the output signal of the SQUID by a predetermined ratio having a negative value such that the noise-eliminated signal is outputted.

9. (Original) The SQUID sensor of claim 8, wherein the ratio is a product of an output value of the SQUID, a combination constant of the feedback coil, and a gain of the SQUID driving unit.

10. (Original) The SQUID sensor of claim 1, wherein the auxiliary sensor is comprised of a pick-up coil sensor or a transformer.

11. (Original) The SQUID sensor of claim 1, further comprising a refrigerator for continuously or frequently maintaining the SQUID sensing unit in a low temperature.

12. (Original) The SQUID sensor of claim 11, wherein the refrigerator comprises:

a motor unit for generating a magnetic field having a permanent magnet and a fixed electro-magnet;

a coolant for allowing a low temperature portion to be cooled by a compression, expansion process of the motor unit; and

a cold end for transmitting the coolant to the SQUID sensing unit to maintain the SQUID sensing unit in the low temperature.

13. (Original) The SQUID sensor of claim 12, wherein the auxiliary sensor is disposed near the motor unit, and the SQUID sensing unit is disposed distant away from the motor unit.